

FREQUENTLY ASKED QUESTIONS (FAQ's)

Code of Practice: WASTEWATER TREATMENT AND DISPOSAL SYSTEMS SERVING SINGLE HOUSES

INTRODUCTION

The Environmental Protection Agency is frequently contacted about the *Code of Practice Wastewater Treatment and Disposal Systems serving Single Houses (p.e. ≤10) (CoP)*. This document has been prepared to provide answers to the frequently asked questions about the code and treatment systems for single houses.

If your query is not answered by this document and if it relates to a site-specific question then our advice is that you should contact your local authority in the first instance. Local authorities can contact the EPA for advice and assistance if they have specific technical questions about the wastewater treatment code of practice.

If your question is about planning permission then you should contact your local authority, as this is an area that is not dealt with by the EPA.

Q. What guidance is available from the EPA on installing a treatment system for a single house?

A. The *Code of Practice Wastewater Treatment and Disposal Systems serving Single Houses (p.e. ≤10)* published by the EPA in 2009 replaces previous guidance issued in 200 and provides guidance on installation of on-site wastewater treatment systems. It is designed to help planning authorities, builders and others to deal with this issue.

Q. Where can I purchase a copy of the *Code of Practice Wastewater Treatment and Disposal Systems serving Single Houses (p.e. ≤10)* ?

A. There are a variety of ways to obtain a copy of the *Code of Practice Wastewater Treatment and Disposal Systems serving Single Houses (p.e. ≤10)*

The Wastewater Treatment Manual for Single houses can be downloaded from www.epa.ie

It is also possible to purchase the Wastewater Treatment Manual by writing to:
Publications Office
Environmental Protection Agency,
McCumiskey House,
Richview,
Clonskeagh Road,
Dublin 14

Or calling Publications Office at 01-2680100

Payments may be made by cheque, postal order or bank draft made out the Environmental Protection Agency or by credit card for web and telephone sales.

Q. How can I apply for the 'Site Suitability Assessments for On-Site Wastewater Management' FAS training course?

A. It is possible to apply to this training course by contacting FAS at the following:

envirotrain@FAS.ie or by calling FAS at 01 6070500.

For more information on this course, see

http://www.fas.ie/environmental_training_unit/wastewater_management.html

Q. Where can I find a qualified person to carry out a Site Suitability Assessment as part of a planning application for a single house?

A. Local authorities are responsible for determining who is qualified to carry out site suitability assessments within their functional area. In some cases local authorities have a list of designated persons who may carry out the assessment, these can be found on their websites or by contacting the Planning or Environment Section of the local authority. In cases where a list is not drawn up then contact the Planning or Environment Sections directly for information on their minimum requirements.

A list of persons having successfully completed the FAS training course may be available from FAS at 01 6070500. Otherwise prior to employing a site suitability assessor ask to see a copy of their FAS certificate as proof of completion of the course.

Q. What are the legal standards that I must comply with in relation to the installation of a wastewater system for a single house?

A. Septic tanks installed on or after 1 June 1992 must comply with Part H of the National Building Regulations. The relevant Technical Guidance Document (TGD) - H (Drainage and Waste Water Disposal) calls up the following standards:

- Septic tanks serving single houses: Irish Standard Recommendations SR6:1991 for Domestic Effluent Treatment and Disposal from Single Dwellings, issued by the National Standards Authority of Ireland (NSAI); and
- Septic tanks serving groups of houses: British Standard B.S. 6297: 1983 (incorporating amendment No. 1 of 1990), a Code of Practice for the Design and Installation of Small Sewage Treatment Works, issue by the British Standards Institution (BSI).

However, the EPA understands that it is the intention of the Department that the Code of Practice will supersede SR6:1991, which will be withdrawn by the NSAI. The Department plans to amend TGD-H, to call up the EPA Code of Practice in 2009.

CONSUMER RIGHTS

Q. What are my rights in relation to site assessment or wastewater treatment services?

A. Contact the National Consumer Agency, Telephone Number: 01 402 5500.

SITE CHARACTERISATION

Q. What is involved in carrying out a Site Characterisation?

A. Site characterisation involves the characterisation of the ground conditions of the site and then the selection of an appropriate wastewater treatment system. The objective of site characterisation is

- to determine if the site can adequately treat the wastewater;
- to check that the treated wastewater can get away; and
- to check that the minimum site separation distance can be achieved.

Detail of how to carry out site characterisation for a wastewater treatment system for single houses can be obtained in Section 6 and Annex C of the *Code of Practice Wastewater Treatment and Disposal Systems serving Single Houses (p.e. ≤10)* (2009).

Q. What is a percolation test?

A. A percolation test is a method of assessing the ability of the subsoil to allow water to percolate to the water table (i.e. how water can pass through the soil). In the test a small hole is excavated and the time taken for the water to drop in minutes is

recorded. It is recommended that a suitably qualified person carry out percolation tests. Contact your local authority to obtain a list of qualified persons. For more information on these tests, see Annex C of the CoP.

Q. What is the minimum recommended distance between two percolation test holes?

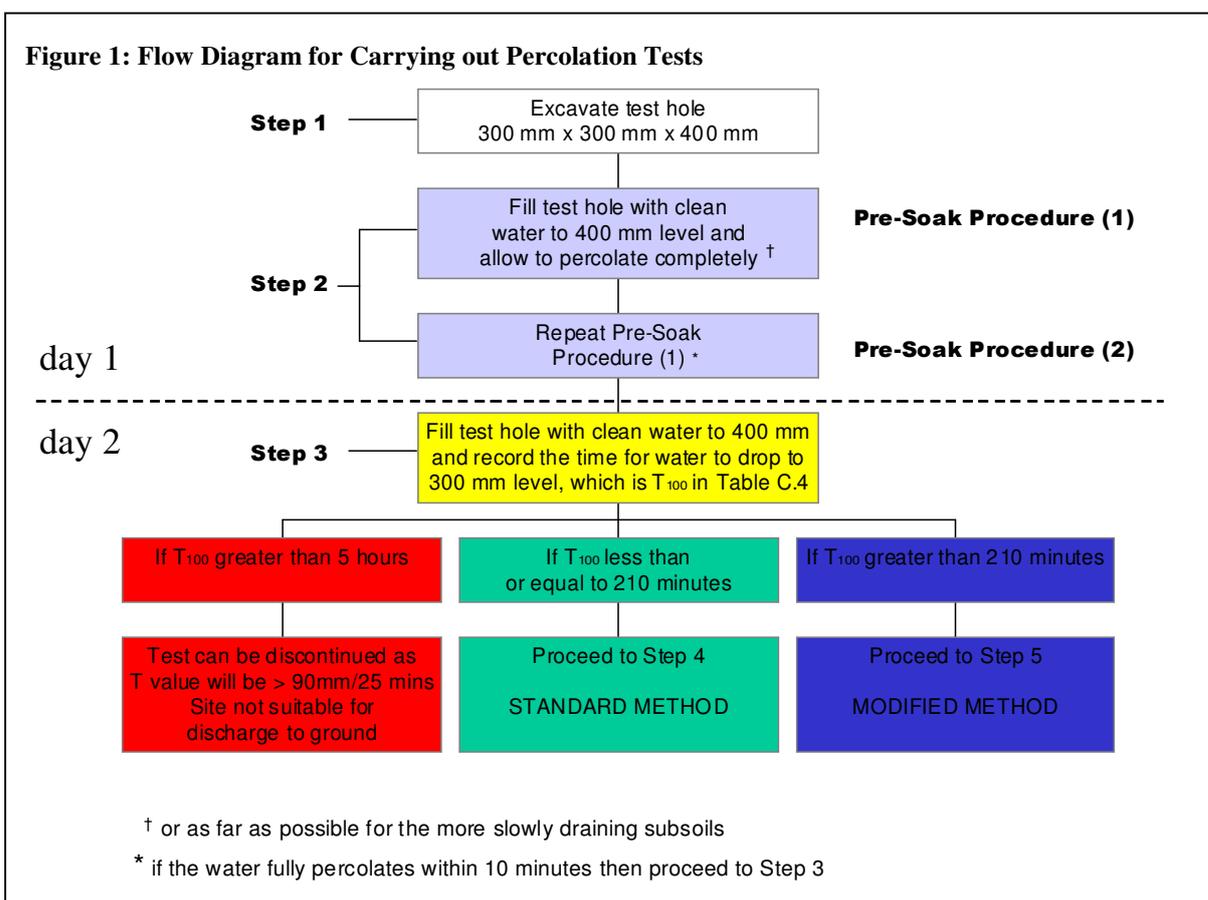
A. Test holes should be located at either side of the proposed percolation area (but not within it), to ensure that the percolation characteristics are assessed across the percolation area.

Q. What is the difference between “T” and “P” tests?

A. Both of these are percolation tests that assess the ability of the subsoil to allow water to percolate to the water table. The main difference is that they are carried out at different levels. A “T” test is used to test the suitability of the subsoil at depths greater than 400mm below the ground level. A “P” test is carried out at ground level where there are limiting factors such as high water table or shallow rock.

Q. Which percolation test method should I use?

A. See Figure 1 below



Q. What is the modified test method? When is it to be used?

A. The modified percolation test is a new test that will reduce the amount of time required to be spent on-site to obtain a percolation test result in areas with low permeability soils/subsoils. The modified test should be used in the case the initial drop $T_{100} > 210$ minutes or where the site assessor expects that the result will be above 75.

- Q. I have got very different percolation test values from my site – what do I do?**
- A. Three percolation test holes are required for all sites. Where there is a high degree of variability in the subsoil characteristics then additional tests could be carried out. The results of these tests should be examined in light of the other three test results. A detailed examination of the subsoil types within the trial hole and the individual test holes should be undertaken to determine the dominant site conditions. The dominant subsoil type in the test holes and trial hole should be taken, as representative of the site conditions and therefore the percolation test results that equate to that should be used.
- Q. What can I do if the T test fails?**
- A. If a T test fails; a P test should be carried out only where the T test result is less than 90. If the percolation test result is greater than 90 then discharge to ground is not recommended as ponding will occur. The P-test will establish if it is possible to install a constructed percolation area or a polishing filter. It determines whether the upper layers of the subsoil are permeable enough to allow percolation of the treated wastewater into the ground. If the P test passes it may be possible to install a secondary treatment unit with a polishing filter – see Sections 8, 9 and 10 of the CoP for more details. If both the P and T test fail, it is only permitted to discharge the effluent to surface waters. A water pollution licence must be obtained from your local authority. See Section 6 and Annex C of the CoP for more information on P and T tests.
- Q. What information can a local authority request in relation to the suitability of a site?**
- A. A planning authority is currently entitled to request any information on site suitability for an on-site wastewater disposal system from the applicant that it considers necessary to make a decision on an application for planning permission. Under Article 22 (2)(c) of the Planning and Development Regulations 2006, where it is proposed to dispose of wastewater other than to a public sewer, the applicant must submit information on the type of on-site wastewater treatment system proposed and evidence as to the suitability of the site for the system proposed as part of the planning application.
- Q. How can I tell if I have a high water table?**
- A. A high water table can be determined by constructing a trial hole and leaving it open for 48 hours during the site assessment. The water level should be measured from ground level.
- Q. What can I do if I have a high water table?**
- A. A depth of 1.2m of free draining subsoil ($1 \leq T \leq 50$) to the bedrock must exist at all times for a septic tank system. If this is not the case, the use of a septic tank system is not recommended but a suitable secondary treatment system may be installed if the subsoil has a percolation rate (T/P test result) between 1- 75 and there is a minimum of 900mm unsaturated subsoil (i.e. water table is at least 900mm below the ground surface) so that a polishing filter may be constructed.
- Q. Is it permissible to have more than one house sharing a septic tank and well?**
- A. This is a matter for the planning authority.
- Q. Are all sites suitable for the installation of a wastewater treatment system of one kind or another?**
- A. In some cases the site conditions could mean that the treatment of wastewater may not be possible on site without the risk of causing water pollution generally where there is low permeability subsoil. The site suitability assessment process will determine this but the ultimate decision on whether a site is suitable will rest with the local authority or planning authority.

SELECTING A SYSTEM

Q. How can I go about selecting a wastewater treatment system?

A. Details of the different on-site wastewater treatment systems, both septic tank systems and package treatment systems, can be found in the Agency's *Code of Practice Wastewater Treatment and Disposal Systems serving Single Houses (p.e. ≤10)* (2009). This code outlines each of the requirements for wastewater treatment systems.

Q. What is included in the term domestic wastewater?

A. Domestic wastewater includes grey water and sewage from domestic dwellings. Grey water is defined as wastewater that comes from sinks and washing machines, i.e. the wastewater that contains some bleach and detergents. The grey water from your household is treated in the same way as sewage whereby it is collected in a septic tank and undergoes treatment either in a percolation area or in a secondary treatment unit prior to being discharged via a polishing filter to ground. Rainwater is not classified as grey water and therefore should not be discharged into your wastewater treatment unit.

Q. How do you determine what type of wastewater treatment system is required for a single house?

A. Firstly, a suitably qualified person must carry out a site assessment in accordance with the guidance set out in the *Code of Practice Wastewater Treatment and Disposal Systems serving Single Houses (p.e. ≤10)* (2009). This is then followed by the selection of a suitable wastewater treatment system, which is dependent on the site conditions determined during the site assessment.

The choices of on-site wastewater treatment and disposal systems are;

- Septic tank systems – septic tank and a properly constructed percolation area
- Secondary Treatment System: Constructed On-site – septic tank, filter system (including constructed wetlands) followed by a polishing filter for discharge to ground.
- Secondary Treatment: Packaged Wastewater Systems – package system followed by a polishing filter for discharge to ground.
- Tertiary Treatment Systems – polishing filters, constructed wetlands or package tertiary systems.

It may be required to discharge effluent to surface waters if the percolation tests fail, in which case a discharge licence from your local authority is required.

Q. What is an acceptable housing density?

A. The CoP sets out minimum separation distances between wastewater treatment systems and vulnerable features including houses, wells and watercourses. However, the planning authority may increase these distances where it is deemed appropriate. One of the limiting factors for the siting of a wastewater treatment system is the existing level of nitrates in the groundwater. If the nitrate levels in the groundwater in a particular area are elevated due to the high density of wastewater treatment systems in that area, then the Local Authority may seek additional information (including dilution calculations) to assess any potential impact on the groundwater quality from any proposed development. Section 6.4 and Annex D.2 of the CoP provides more details.

Q. Why and how is a dilution calculation performed?

A. A dilution calculation is carried out to estimate the potential impact on the groundwater quality of allowing a wastewater treatment system to be installed. The only parameter that Local Authorities would need to vary is recharge, which could be reduced in the drier counties. Recharge rates may be obtained from Met Eireann. Details on carrying out dilution calculations may be found in Annex D.2 of the CoP.

Q. Do I need a licence to discharge directly from a wastewater treatment system to surface water or groundwater?

- A. A water pollution discharge licence is required from the local authority
- If the treated effluent is discharged to surface waters
- Or
- If the quantity of treated wastewater is greater than 5m³/day and is being discharged to groundwater.

Contact your Local Authority's Environment Section for more information or to apply for a water pollution licence. Application forms may be downloaded from the local authority's website. Most local authorities do not allow discharges from a single house to surface waters.

Q. Who installs Wastewater Treatment Systems? What are the requirements?

- A. A suitably qualified installer should install on-site wastewater treatment systems; this includes septic tank systems, secondary treatment: systems constructed on-site and secondary treatment: packaged systems. The secondary treatment systems are required to be followed by polishing filters. Usually, the manufacturer will recommend a person who is suitable to install the system or may install it themselves. This person is then responsible for the testing of the system after installation, to ensure that it is working effectively. In all cases the installation of the on-site wastewater treatment system should be certified. Contact the local authority for more details as to their specific requirements.

Q. Who certifies the design of Wastewater Treatment Systems?

- A. A treatment system should meet the requirements of the EN 12566 series of standards developed by the European Committee for Standardisation TC 165. Innovative products and technologies, not specifically covered by national or European harmonised standards should be certified, be fit for the purpose for which they are intended, the conditions in which they are used and meet the performance requirements of the CoP.
- The Irish Agrément Board is part of the National Standards Authority of Ireland (NSAI) and is the national certifying body. Its function is to assess, test, and where appropriate, issue Agrément Certificates in respect of materials, products, systems and techniques used in the construction industry, particularly those used of an innovative nature, in order to facilitate their ready acceptance and their safe and effective use. Agrément Certificates provide the Board's opinion of the fitness for specified purposes of materials, products, systems and techniques, taking into account the context in which they are to be used.

PROTECTION OF WELLS AND WATER COURSES

Q. How far away from a wastewater treatment system is it safe to locate a well so as to prevent contamination?

- A. The minimum recommended distance between a water well and a wastewater treatment system (including percolation area or polishing filter) septic tank is set out in the Groundwater Protection Responses¹ (amended 2009 – Annex B), where zoning for groundwater protection schemes outlines the aquifer classification in the general area and the vulnerability of the groundwater. The minimum distance of wells from wastewater treatment systems and percolation areas/polishing filters are set out in Table 1.

¹ Groundwater Protection Schemes 1999 EPA/DEHLG/GSI can be purchased from the EPA Publications Office or from the EPA website.

Table 1: Recommended Minimum Distance between a Receptor and a Percolation Area or Polishing Filter

T/P-value ¹	Type of soil/subsoil ²	Depth of soil/subsoil (m above bedrock) (see Notes 1, 2, 3, 6)	Minimum distance (m) from receptor to percolation area or polishing filter ⁵				
			Public water supply	Karst feature	Down-gradient domestic well or flow direction is unknown (see Note 5)	Domestic well alongside (no gradient)	Up-gradient domestic well
>30	CLAY; silty, sandy	1.2			40		
	CLAY (e.g. clayey till); CLAY/SILT	>3.0	60	15	30	25	15
10–30	Sandy SILT; clayey, silty	1.2			45		
	SAND; clayey, silty GRAVEL (e.g. sandy till)	>8.0	60	15	30	25	15
<10	SAND; GRAVEL; silty SAND	2.0 ³			60		
		2.0 ⁴	60	15	40	25	15
		>8.0 ⁴			30		

¹The T-value (expressed as min/25 mm) is the time taken for the water level to drop a specified distance in a percolation test hole. For shallow subsoils the test hole requirements are different and hence the test results are called P-values. For further advice see Annex C.

²BS 5930 descriptions.

³Water table 1.2–2.0 m.

⁴Water table >2.0 m.

⁵The distance from the percolation area or polishing filter means the distance from the periphery of the percolation area or polishing filter and not from the centre.

Notes:

1. Depths are measured from the invert level of the percolation trench.
2. Depths and distances can be related by interpolation: e.g. where the thickness of silty, sandy CLAY is 1.2 m, the minimum recommended distance from the well to percolation area is 40 m; where the thickness is 3.0 m, the distance is 30 m; distances for intermediate depths can be approximated by interpolation.
3. Where bedrock is shallow (<2 m below invert of the trench), greater distances may be necessary where there is evidence of the presence of preferential flow paths (e.g. cracks, roots) in the subsoil.
4. Where the minimum subsoil thicknesses are less than those given above, site improvements and systems other than systems as described in Sections 8 and 9 may be used to reduce the likelihood of contamination.
5. If effluent and bacteria enter bedrock rapidly (within 1–2 days), the distances given may not be adequate where the percolation area is in the zone of contribution of a well. Further site-specific evaluation is necessary.
6. Where bedrock is known to be karstified or highly fractured, greater depths of subsoil may be advisable to minimise the likelihood of contamination.

Q. What are the minimum separation distances to rivers, beaches, lakes, etc?

A. The minimum recommended distances for the above are set out in Table 2.

Table 2: Minimum Separation Distances in metres

	Septic tank, intermittent filters, packaged systems, percolation area, polishing filters (m)
Wells ¹	–
Surface water soakaway ²	5
Watercourse/stream ³	10
Open drain	10
Heritage features, NHA/SAC ³	–
Lake or foreshore	50
Any dwelling house	7 septic tank 10 percolation area
Site boundary	3
Trees ⁴	3
Road	4
Slope break/cuts	4

¹See Annex B: *Groundwater Protection Response*.
²The soakaway for surface water drainage should be located down gradient of the percolation area or polishing filter and also ensure that this distance is maintained from neighbouring storm water disposal areas or soakaways.
³The distances required are dependent on the importance of the feature. Therefore, advice should be sought from the local authority environment and planning sections (conservation officer and heritage officer) and/or from the Department of the Environment, Heritage and Local Government (DoEHLG), specifically the Archive Unit of the National Monuments Section and the National Parks and Wildlife Service. If considering discharging to a watercourse that drains to an NHA/SAC the relevant legislation is Article 63 of the Habitats Directive. (NHA, National Heritage Area; SAC, Special area of Conservation.)
⁴Tree roots may lead to the generation of preferential flow paths. The canopy spread indicates potential root coverage.

Q. Is it possible to disinfect a contaminated well?

A. To disinfect a well you must:

1. Obtain 9 litres (2 gallons) of 3% strength or 4.5 litres (1 gallon) of 5% strength e.g. Parazone) bleach.
2. Make up to 22.5 litres (5 gallons) by adding water and mix thoroughly.
3. If sampling during a pumping test, on the day before the test starts pour half of the solution into the well.
4. Start the pump and let it run briefly until water with a distinct smell of chlorine pours from the outlet pipe.
5. Turn off the pump immediately. Add the remainder of the solution and leave overnight.
6. Pump to waste until the smell of chlorine disappears before taking a sample for analysis.

If sampling from a well that is connected to a house, pour half of the solution into the well, start the pump and open all taps until water from each tap has a distinct smell of chlorine. Stop the pump and add the rest of the solution. Allow this to stand for 12-24 hours and then pump to waste until the smell of chlorine disappears.

In addition you should try to determine what is causing the contamination. What activities are taking place within 50m radius of the well? Is there adequate protection around the top of the well?

For more information on disinfecting wells, see the GSI website.
<http://www.gsi.ie/everyone/faqs/water/fagwater.htm#gw8>

SEPTIC TANKS, PERCOLATION AREAS AND OTHER FILTER SYSTEMS

Q. Is a reserve percolation area required?

A. The Agency's CoP does not require a reserve percolation area but requires a rigorous site assessment, correct installation and proper maintenance of the wastewater treatment system. In addition, minimum separation distances must always be achieved.

Q. Can I have trench widths greater than 500mm in my percolation area?

A. The recommended trench width is 500mm. The percolation trench lengths given in Section 7 of the Agency's CoP is dependant on this trench width of 500mm.

Q. What is a polishing filter?

A. Polishing filters consist of either soil or sand and are employed to reduce micro-organisms from wastewater. They are used to treat wastewater from intermittent filters, constructed wetlands and packaged treatment systems and to allow for the discharge of treated wastewater to ground. See the Section 10 of the CoP for more information.

Q. What is the difference between a soil polishing filter and a sand polishing filter?

A. Soil polishing filters comprise in-situ or improved or imported soil, whereas sand polishing filters are comprised of layers of sand. See the Section 8 Secondary Treatment: Systems Constructed On-site for more information.

Q. Who supplies sand filters in Ireland?

A. Unfortunately we do not have a list of suppliers for the materials used in the construction of sand filters but refer to the specifications set out below.

Q. I want to use a constructed wetland as my wastewater treatment system. What should I do?

A. A site suitability assessment is required to be completed prior to selecting any system. If the site is suitable for a constructed wetland then the following should be noted.

Any discharge from a constructed wetland to surface water requires a water pollution discharge licence in accordance with the Water Pollution Acts 1977-1990. Specific information can be obtained from the local authorities.

If discharging from the constructed wetland to ground, a polishing filter will be required. If the discharge is greater than 5m³/day, then a water pollution discharge licence is required as well as additional prior investigations.

It should also be noted that constructed wetlands should be inspected weekly to ensure that there is no evidence of varying flow distribution or blockage, that the sidewalls are maintained and that the reeds have not been damaged. See the Wastewater Treatment Manual for Single Houses or contact the Environment Section of your local authority for more information.

Q. What are the key installation requirements for SOIL filters?

A. See Table 8.1 on page 28 of CoP

Q. What are the key installation requirements for SAND filters?

A. See Table 8.2 on page 30 of CoP.

CONSTRUCTION REQUIREMENTS

Q. Can I place a car park or driveway over the percolation area or polishing filter?

A. Roads, driveways or paved areas or any underground services must not be located within the disposal area. This is due to the need to have easy access to the site for maintenance and also to prevent problems with the system due to the potential for damage to the pipework and compaction of the filter materials.

Q. How do I construct a percolation area on a sloping site?

A. Mound systems can be constructed on a sloping site, if the slope of the site does not exceed 12%. They must be constructed carefully along the contour to ensure that minimum installation thickness is maintained and to assist the even distribution of wastewater.

Q. How do I dispose of the rainwater and clean surface runoff from my site?

A. Uncontaminated water should be disposed of by means of a soak pit/soakaway. The soakaway should be designed in accordance with the guidance provided in BS8301 and in BRE Soakaway Design (1991). It should not be located within 5m of any dwelling and as far away as possible from the percolation area (at least a minimum of 5m separation distances should be used).

MAINTENANCE

Q. How often do I have to de-sludge the septic tank?

A. It is recommended to de-sludge a septic tank at least once a year but this varies with the system's capacity and use. You must de-sludge the septic tank if scum is present in the second chamber or if the sludge comes up to about 400mm from the bottom of the tank. A minimum of 75mm of sludge should remain in the tank to assist in the re-seeding of the new sludge. Regular maintenance is required to ensure that the septic tank operates effectively and that solids do not enter the percolation area and clog the distribution pipe work.

Q. Who can I get to de-sludge the tank? What controls are in place?

A. It is recommended that a waste contractor that has an appropriate waste collection permit be employed to de-sludge a septic tank. A list of approved permit holders is available from the Environment Section of your Local Authority.

Q. What are grease traps and what do they do?

A. Grease traps capture the oil and grease from the flow of wastewater by slowing down the flow of hot greasy water through the trap and allowing it to cool. As it cools, the grease and oil separate out of the water and float to the top of the trap. The cooler water then flows to the septic tank where it is treated. Grease traps are usually not included in the design of a domestic wastewater system but are mandatory in systems treating water from restaurants, hotels and any other businesses that supply food.

Due to the absence of these systems in single dwellings it is highly important that people do not allow any fats, grease or oils to enter their septic tank systems. The inlet pipes can become clogged up by the fats and grease and therefore can reduce the treatment rate of the septic tank system. To insure that this doesn't happen to your system, all fats, grease and oils must not be disposed down the sink or drains.

Q. Do I really need to renew my maintenance agreements?

A. Yes. All on-site wastewater treatment systems require ongoing maintenance to ensure that the system is providing adequate treatment of the wastewater. An ongoing maintenance agreement should be made and renewed with an appropriately qualified person to ensure that your wastewater treatment system is working effectively at all times.

Q. Will bleach or disinfectants harm the septic tank system?

A. Normal amounts of household bleach, disinfectants and detergents will not harm the septic tank system. However, excessive amounts of bleach will temporarily reduce the treatment capacity, as the microorganisms needed to treat the biological waste will be killed off. In saying this, the system should return to full performance capacity within a short period of time. It is important to be aware of potential effects that excessive use of these chemicals will have on your wastewater treatment system.

COMPLAINTS

- Q. I am concerned that my neighbours treatment system is contaminating my well. What can be done about this?**
- A. You are advised to contact the local authority in the first instance. Both the planning and environment sections of the local authority should be contacted. By consulting the planning files, an assessment of whether or not the wastewater treatment system is installed according to the planning permission can be made. In relation to the concern that the wastewater treatment system is potentially contaminating the well, advice should be sought from the environment section and the local Environmental Health Officer (EHO).
- Q. There is a problem with my neighbours treatment system, which is flooding onto my property. What can be done to get this resolved?**
- A. Contact the environment section of the local authority for advice.
- Q. What role does the EPA have in relation to checking that a treatment system is suitable and installed properly?**
- A. The EPA does not have a role in assessing compliance with planning conditions. It does however, provide advice to local authorities in relation to wastewater treatment through the publication of guidance manuals and advice where requested. It is the responsibility of the local authority through its planning section to enforce the conditions of planning and the environment section enforces water pollution legislation.